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G. R. Shaul
Public Works Director

May 2, 2006

Mr. Robert Schneider, Chair
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670

SUBJECT: Clear Lake Nutrient TMDL

Dear Mr. Schneider,

This letter is in response to the proposed amendment to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Nutrients in Clear Lake. The County appreciates the willingness of Regional Board staff to include the County in the process of developing the TMDL. However, because of pressure from EPA to develop a TMDL, limited budget and strict timelines, we do not feel that the County's major concerns were adequately addressed. The County's major concern is the information utilized to justify the TMDL does not reflect the current conditions in Clear Lake. The clarity of Clear Lake has increased significantly since 1990, see secchi depth chart at Enclosure A.

The last comprehensive analysis of the phytoplankton ecology of Clear Lake was the EPA Clean Lakes Diagnostic/Feasibility Study The Causes and Control of Algal Blooms in Clear Lake, dated July 1994 (Clean Lakes Study). The Clean Lakes Study utilized information collected by the California Department of Water Resources (DWR) between 1969 and 1992. The Clean Lakes Study is comprehensive, but it is our opinion that it does not address current conditions in Clear Lake. In 1991, Clear Lake's limnology underwent a significant change, with clarity more than doubling, a reduction in the frequency and magnitude of blue-green algal blooms, and the proliferation of aquatic macrophytes. Because of the limited data available, the Clean Lakes Study was unable to properly analyze the post-1991 lake conditions. Review of available data collected by the Department of Water Resources (DWR) through 2001 indicated in-lake levels of phosphorus have not changed significantly from the pre-1990 period but the lake is clearer, see Enclosure B. Without an update of the Clean Lakes Study, as we requested in 2002, see attached letter at enclosure C, it is difficult to determine whether Clear Lake, a naturally eutrophic lake, is water quality limited and whether a Total Maximum Daily Load is required or that phosphorus limitation will increase the lake clarity.

Therefore, the County disagrees with the Target Report prepared by Tetratech. The Regional Board staff was able to have Tetratech visit Clear Lake as requested in 2002 and listen to our presentation on Clear Lake and our concerns regarding the appropriateness of the Clean Lakes

Report's conclusions. However, Tetratech returned to their offices and proceeded to develop a Target Report based on reducing phosphorus inputs to Clear Lake and determined that this singular action would reduce nuisance blue-green algal blooms, exactly what the County did not consider appropriate.

- The Target Report also appears to draw erroneous conclusions on when the lake was in "compliance." The Target Report lists the "compliance period" to be between 1985 and 1989 and the non-compliance period to be 1990 and 1992. In reality, there have been significantly fewer nuisance, blue-green algal blooms since 1991. DWR secchi depth data for the Upper Arm of Clear Lake confirm this, with secchi depths averaging 0.9 meters during 1985 through 1990, and averaging 1.7 meters during 1991 through 1992, the "non-compliant" years, see Enclosure D. Since 1991, the Upper Arm secchi depth has averaged 2.1 meters. How is a lake with double the clarity of the "compliant" lake "non-compliant"?
- The Target Report also recommends that chlorophyll-a be utilized in determining whether Clear Lake is in compliance. There is very little historical data on chlorophyll-a levels in Clear Lake, therefore, the models used in preparation of the Target Report are unverifiable and we are unable to determine whether the recommended target is appropriate.

These two major issues cause the County to question the validity of the Target Report, which serves as the basis to the TMDL and all numeric targets and loadings. After extensive discussion, County and Regional Board staff agreed to disagree on the Target Report. Without a good understanding of the causes of the changes in lake clarity that occurred in 1991, it is not clear how much, if any, change in phosphorus inputs will change lake clarity and the frequency and magnitude of nuisance blue-green algal blooms. Regional Board staff understood our concerns with the Target Report and included the need to update the understanding of Clear Lake limnology in Action No. 7 of the proposed Basin Plan amendments.

The County concurs with the recommendations of Regional Board staff that reducing erosion within the Clear Lake watershed is probably beneficial to Clear Lake, however, we feel any numeric targets are inappropriate until further studies are completed. Since the County began implementing erosion control measures in 1981 with the passage of the Grading Ordinance and the Surface Mining Ordinance, erosion and sediment delivery to Clear Lake has probably been reduced (the County did not monitor sediment and phosphorus concentrations in Clear Lake tributaries prior to 1991 and does not have data). This may be one of the causes of the increased clarity in Clear Lake since 1991. Studies by UC-Davis researchers have indicated there may be other causes to changes in lake clarity.

The County is concerned about the ability of a small rural county to fund the mandates of the proposed Basin Plan amendments. These unfunded mandates are in addition to the numerous state directed unfunded mandates such as the Mercury TMDL, Stormwater NPDES program,

aquatic herbicide NPDES permit and the arbitrary escalation of all state fees in the past 2 – 3 years. Some specific concerns include:

- The monitoring costs to demonstrate the phosphorus loading are significant. Regional Board staff has estimated the current cost at $74,000 per year for operating stream gages and water quality monitoring. Funding for monitoring of chlorophyll-a is not provided either. The estimate also assumes that DWR will continue the regular monitoring of Clear Lake conditions. In 2001, these costs were approximately $35,000 per year. These costs will increase over time and are significant for the County. While the cost of estimating phosphorus loading through modeling is less, models are unverifiable without real data.
- The implementation of BMP's is estimated at $4 to $18 million. These costs are substantial. While grants, such as 319h grants, may assist in funding, grants are not a reliable source of funding, and the County and its residents will be forced to bear a large percentage of these costs.
- The costs for updating the Clean Lakes Study are significant, and have been underestimated on page 26 of the Staff Report. The Clean Lakes Study was prepared by UC-Davis researchers under a $160,000 contract ($100,000 from Section 318 and $60,000 from the County). This was supplemented with additional County funding for water quality monitoring of the tributaries, equipment and staffing. Funding was not adequate for UC-Davis researchers to conduct many experiments that would have been helpful in understanding Clear Lake's limnology. With inflation, a similar study is likely to cost in excess of $400,000.

The County will continue to work with staff on alternative language for the Proposed Basin Plan amendment.

If you have any questions, please call me at (707)263-2341.

Sincerely,

Robert L. A. Lossius
Assistant Director

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Enclosures

cc: Lake County Board of Supervisors